Some Coleoptera of the North Saskatchewan Headwaters—Canadian Rocky Mountains.

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During the course of several mountaineering expeditions to the icefield sources of the North Saskatchewan and Athabaska rivers, the writer and his companions have noticed the abundance of insect life to be seen during traverses of many of the higher snowfields. Our attention was arrested by this while at the Freshfield icefield (1922), on the Columbia icefield (1923), and, to a lesser extent, on the Hooker and other icefields adjacent to Athabaska Pass (1924).

The Columbia icefield, the largest in the Rocky Mountains of Canada, contains approximately one hundred and twenty-five square miles, and is situated on the Continental Divide (Alberta-British Columbia) in Latitude 52° 12'. It forms a compact triple-divide, draining to the Columbia, Saskatchewan and Athabaska river systems. During the course of two crossings of this field, we found numerous moths and beetles on the snow, at 10,000 feet and above, carried up there by air-currents. The insects were alive, although torpid from cold, and appear to be a dependable source of food supply for small birds that one sees wheeling and darting about. Due to their small size and generally dark color, the insects absorb heat and melt small pits in the snow surface from which they are unable to extricate themselves.[1]

No systematic attempts were made at collecting during these years; we were not entomologists, but were primarily interested in topography and the self-sufficient ends of mountaineering sport. However, during the course of an expedition to Glacier Lake, in July, 1926, the interest of the North Saskatchewan valleys as a relatively unstudied area induced us to make such scientific observations as our somewhat limited knowledge permitted. Geology, glacial motion, botany, color and motion-picture photography and entomological collecting were among our objectives.

A portion of the data obtained has been published elsewhere.[2]

[1] *The Glittering Mountains of Canada*, J. Monroe Thorington (Lea, 1925), p. 89.

[2] *The Mountains of Glacier Lake*, J. Monroe Thorington; Alpine Journal xxxix, May, 1927. *The Lyell and Freshfield Glaciers, Canadian Rocky Mountains*, J. Monroe Thorington; Smithsonian Miscellaneous Collections, Vol. 78, No. 6, 1927.

The purpose of the present paper is to report the coleoptera obtained, as, owing to lack of facilities and time, no other order of insects was collected.

Leaving Lake Louise, on the Canadian Pacific railroad, on June 30, we proceeded northward by the Bow (South Saskatchewan) valley and encamped on the slopes of Mt. Hector, reaching Bow Lake on the following morning. On July 2 we crossed Bow Pass to the North Saskatchewan, making camp at the upper Wildfowl Lake (4800 feet). Here were obtained *Xestoleptura crassipes* Lec. and *Monochamus monticola* Csy. The ground is made up of gravel and small stones, with a sparse growth of bush and jack-pine.

On July 3 we reached the forks of the Saskatchewan, camping by the river not far below and across from the Glacier Lake stream. The elevation is about 4200 feet, the soil being glacial sand and gravel. Several species of *Bembidion* were obtained here.

Next day we reached the flats at the upper end of Glacier Lake, where we maintained a base camp until July 14. The elevation is 4800 feet. At this camp were collected *Opisthius richardsoni*, Kby., *Notiophilus borealis* Harr, and the rare palaearctic Carabid *Miscodera arctica* Payk. In addition we secured *Cryptohypnus nocturnus* Esch., *Magdalis* sp., *Acmaeops pratensis* Laich., *Neoclytus muricatulus* Kby., *Chrysobothris trinervia Kby.* and *Anthaxia aenogaster* Cast. The Buprestids and Cerambycids were taken on fresh-cut timber, their activity and speed making them difficult to capture.

A high camp, 7000 feet, was made above the north lateral moraine of the Lyell glacier on July 4, serving for climbs on the icefield until July 9. The ground was a carpet of heather, interspersed with boulders and storm-twisted pines. *Nebria hudsonica* Lec., *Xylotrechus montanicus* Csy. and *Lepyrus colon* L. were found.

On the Lyell icefield, at 10,000 feet, only Cerambycids were seen, but they were very common. *Criocephalus productus* Lec. and *Leptura pedalis* Lec., were collected on July 6, during an ascent of Mt. Lyell.

On July 12, from a bivouac in the angle between the Mons and Lyell glaciers, the ascent of Mt. Forbes (11,902 feet) was

made. No coleoptera were encountered, but large aphids were noticed on the snow above 11,500 feet.

On the Freshfield glacier, during the course of measurements on ice motion, on July 15, several specimens of *Pachyta liturata* Kby. were found. That birds do not take them from bare ice is evidenced by the fact that many of these Cerambycids were dead and partially decomposed. On the upper snowfields, however, the specimens were almost invariably alive, and birds frequently in evidence.

Returning to the Saskatchewan valley, on July 16, we camped on Howse river, at 4300 feet, above the Glacier Lake stream. Here the ground was mossy and green, with timber and many flowers. *Platynus* sp., *Thanasimus undulatus* Say., *Judolia sexmaculata* L. and *Syneta carinata* Mannh. were found here.

Ordinary collecting methods were used throughout this expedition, although the technique employed on the icefields is believed to be unique. We were a mountaineering party, four on a rope, with definite objectives which permitted but infrequent halts if they were to be successfully attained. At such times a collector can not expect much sympathy from other members of the party. The writer, therefore, soon became adept in manipulating the climbing rope and a cyanide bottle with the left hand, while the ice-axe in the right served to slice out a small block of snow in which the desired specimen was seen. The snow was lifted from the axe blade and the insect transferred to the killing-bottle, the entire operation completed without retarding the progress of the climbers.

The Coleoptera taken at the higher levels were exclusively Cerambycids. These are strong in flight and, from their distribution on the snowfields, appear to have come chiefly from the Alberta side of the Continental Divide. Their association with moths, aphids, butterflies and wood-borers, with exclusion of other coleoptera, as typical of the insect life on the snowfields, is of interest.

While, with the exception of *Miscodera arctica*, no very unusual specimens were secured, yet the data obtained add to the knowledge of distribution through an interesting area practically

unknown to collectors. In all, one hundred and sixty Coleoptera were brought back in good condition. Mr. Frank R. Mason has kindly identified and classified them as follows:—

CARABIDAE.

Opisthius richardsoni Kby. Glacier Lake, 4800 feet, July 5.
Notiophilus borealis Harr. Glacier Lake, 4800 feet, July 5.
**Miscodera arctica* Payk. Glacier Lake, 4800 feet, July 5.
Nebria hudsonica Lec. Glacier Lake, 7000 feet, July 9.
Bembidion, several species. Saskatchewan Forks, 4200 feet, July 3.
Platynus sp. Saskatchewan River, 4300 feet, July 16.

CLERIDAE.

Thanasimus undulatus Say. Saskatchewan River, 4300 feet, July 16.

ELATERIDAE.

Cryptohypnus nocturnus Esch. Glacier Lake, 4800 feet, July 5.

BUPRESTIDAE.

Chrysobothris trinervia Kby. Glacier Lake, 4800 feet, July 5.
Melanophila fulvoguttata Harris. Glacier Lake, 4800 feet, July 5.
var. *drummondi* Kby. Glacier Lake, 4800 feet, July 5.
Anthaxia aeneogaster Cast. Glacier Lake, 4800 feet, July 5.

CERAMBYCIDAE.

Criocephalus productus Lec. Lyell Icefield, 10,000 feet, July 6.
Pachyta lituratа Kby. Freshfield Glacier, 6500 feet, July 15.
**Judolia sexmaculata* L. Saskatchewan River, 4300 feet, July 16.
Xestoleptura crassipes Lec. Wildfowl Lake, 4800 feet, July 2.
Monochamus monticola Csy. Wildfowl Lake, 4800 feet, July 2.
**Acmaeops pratensis* Laich. Glacier Lake, 4800 feet, July 5.
Neoclytus muricatulus Kby. Glacier Lake, 4800 feet, July 5.
Xylotrechus montanicus Csy. Glacier Lake, 7000 feet, July 9.
Leptura pedalis Lec. Lyell Icefield, 10,000 feet, July 6.

CHRYSOMELIDAE.

Syneta carinata Mannh. Saskatchewan River, 4300 feet, July 16.

CURCULIONIDAE.

Lepyrus colon L. Glacier Lake, 7000 feet, July 9.
Magdalis sp. Glacier Lake, 4800 feet, July 5.

(Palaearctic species are marked with an asterisk.)